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together with cipó, 180 cm. long, more or less, which permits the fish to enter but not to escape (fig. 5). Nowadays it is the custom to close this door at midnight in order to place the drug (timbó) in the water of the channel by five o'clock in the morning."

Formerly, a cone-shaped basket (T., pęrɛ:'; l.g., *jiquy*) was also placed at the entrance of the weir. This was made of anajá stripa, its length being 2.5 m., the mouth 1 m. in diameter; from the mouth inward there was a sort of funnel made of stems with sharp points to impede the return of the fish, once they had entered. With this, as has been already mentioned, the Tukuna use the stupefying juices of certain plants, small bushes called generically "timbó" in the lingua geral. The most active poison is provided by a broad-leafed species, ę'ịṅ, which crops up nearly spontaneously in old second-growth jungles but is often cultivated as well, even today. Aside from this there are a large-leafed species, va'ị/pę, and one with tiny leaves, na:'mi, both being cultivated. The drugged fish are captured with a dip net, puçá (described on p. 00). Certain fish, such as *acarís*, are even caught by hand.

The species of greatest economic importance are:

Lingua geral	*Scientific*	Tukuna
pirarucú	*Arapaima gigas*	dö'ɛ̈i
tambaquí	*Colossoma bidens*	tɔ'makaɛ̈i
curimatá	*Prochilodus* sp.	kauɛ̈'ya
aracú	*Leporinus* sp.	ɔ'ta
tucunaré	*Cichla* sp.	tukuna'ri
pacú	*Myteles* sp.	a'ta'ɛ̈inikị
sardinha (P.)	*Chalcinus* sp.	a'raviri
surubím	*Platystoma* sp.	dyu'ta
piranha	*Serrasalmo* sp.	vɛ̈u'ma
trahira	*Macrodon* sp.	dö
matrinchan	*Characinus* sp.	ẗöɛ̈ö'

Aquatic chelonians are shot with the arrow harpoon (sararáca), or are surprised while laying eggs on the beach. The turtle of the species *Emys amazonica* (ba:'vë), now threatened with extinction, is no longer an important food for the Tukuna; but the species *E. dumeriliana* (tɔri')[11] is still abundant, and it, as well as its eggs, plays an important role in the aboriginal kitchen. The *matamatá* (*Chelys fimbriata;* T., nayarë) is rare.

The peixe-boi, or manatee (*Manatus inunguis;* T., a'iruvë), is rarely caught. The Tukuna do not kill the red dolphin (*Delphinus* sp.), notwithstanding their dislike for it because it scares away the fish.

Hunting

Game, which was tolerably abundant until about fifty years ago, is now rare because of the rise in the price of leather and the use of modern firearms which are sold to the Indians. In some isolated sloughs a lucky hunter may succeed in killing a tapir, pig, or deer.

[11] Literal translation; meaning not clear. Possibly the door is closed at this time in order to collect enough fish during these hours to justify the use of the drug.—Trans.

[12] On p. 25 this species is given as *Emys tracaja;* on p. 22 the author refers to it as *Podocnemis.*—Trans.

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224 The Indians go in twos and threes on these hunts. In the jungle close to the
262 settlements, the agouti (*Dasyprocta* sp.) is the most common game; after that, a
136 rodent, the paca (*Coelogenys paca*), and the raccoon, *coatí* (*Nasua socialis*). With some persistence the Tukuna are still able to collect for the obligatory roasts (*moquedo*) of the feasts enough monkeys of the following species: *prego* (*Cebus* sp.), *barrigudo* (*Lagothrix* sp.), *coatá* (*Ateles* sp.), *parauacú* (*Pithecia* sp.), and *guariba* (*Alouatta* sp.).

The following animals are so rare as to lack economic importance: *coandú* (*Cercolabes* sp.); anteater, *mambira* (*Myrmecophaga tetradactyla*); armadillo, *tatú* (*Dasypus* sp.). The otter, *lontra* (*Pteroneura* sp.), another enemy of fishermen, is never eaten.

223 Of feathered game the most important are a forest turkey, the *mutum* (*Mitua*
262 *mitu*); the *jacú* (*Penelope* sp.); and wild pigeons (*Columba* sp.; *Leptoptila* sp.).
136 The red and yellow macaws, *araras* (*Ara macao* and *A. ararauna*, respectively), parrots (*Amazona* sp.), parakeets (*Conurus* sp.), toucans (*Rhamphastos* sp.), and *japú* (*Ostinops decumanus*, Pall.) are killed more for their feathers than for their flesh.

The vulture, *urubú* (*Cathartes urubu*), is not eaten, nor are the *anhumá* (*Palamedea cornuta*) or the *cigana* (*Opisthocomus hoazin*).

As for caimans, the Indians will occasionally eat the young of the species called
225 *jacaré-tinga* (*Caiman yacare*) by the Neobrazilians. The tortoise, *jabóti* (*Testudo*
262 *tabulata*),[18] is little used. The Tukuna will eat some species of snakes.

136 *Weapons.*—Almost all the Indians now hunt with firearms, some with simple muzzle-loading smoothbores, others with good, breech-loading; double-barrelled
41 pieces. Very infrequently some still use the blowgun, *carauatána*, originally their national weapon for small game, above all, for monkeys.

The Tukuna blowgun (i^{n}ẽ′) is the largest of all those known, being usually more
411 than 3 m. long. With the aid of tools now at their disposal, the Tukuna manufacture
322 it as follows. The material they prefer is a solid-ground jungle tree called *punau* (*Iryanthera tricornis*, Ducke; T., pu′rune), lacking which they substitute the wood of the *bacabinha* (*Oenocarpus multicaulis* Spr.?), called in Tukuna "nyë." They bring to the house a piece of sufficient size, trim it, and later work it into the shape of a long, slender rod with four planed surfaces, 3.5 m. long by 7 cm. After sawing this lengthwise through the center, they gouge out a longitudinal furrow some 6 cm. wide from end to end in each section. Near the house, they then seek a tree, which should have a thick, more or less horizontal limb about 6 m. above the ground. From this limb they stretch a length of *cipó guembé* (*Philodendron* sp.) vertically to the ground, and lash a beam to it horizontally just above the ground, its weight keeping the cipó taut.

Around this length of peeled cipó they erect a platform of saplings, permitting a craftsman to stand erect, close to the cipó and about 2.5 m. above the ground; another man stays on the ground below. To the length of cipó they then bind the two lengths of wood, with the grooved sides facing inward, and pour over them water containing sand. The two pieces, now strongly bound together so as to form one unit, they pull up and down, keeping the cipó tightly stretched. With this

[18] On p. 19 the author calls this *Emys tabulata* as well.—Trans.

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since it will lose its strength if brought to a boil. If it thickens too much, water is added. The process is tedious and demands much attention. When the liquid has reached the desired thickness, after about ten days, some six or eight black beetles called "pu'a'vɐ," which feed on the fungus that grows on rotten wood, are sought in the clearing and are tossed alive into the liquid. These insects exude a fetid, yellow excretion. They are removed after about an hour, and the curare is then thickened with extreme care over a slow fire until the final consistency is that of a very dense honey, which grows even thicker upon cooling. The color is dark brown. 278

The mass is transferred to a small, globular pot (gu:'rõ-čɐ-ĵɨ̃) especially made for this purpose, its mouth being covered with a banana leaf and securely tied. If the curare thickens too much with the passage of time, it is softened with a filtered infusion of pounded dyu'-ne leaves.

Fig. 6. Cross section of bow.

The production of curare is not at all a secret, although naturally each maker has his own individual technique. Although women and children are often present at this operation, they never take part in it beyond helping the husband bring home the raw materials or scraping the roots. Von Hassel's statement that "entre los Ticunas tienen las mujeres ... el oficio de fabricar el veneno" is inexact." Sometimes they prepare a special little fire for this purpose at the edge of the clearing, but I have also seen them use the kitchen fire itself, the food being cooked to one side. [462]

The efficacy of the Tukuna poison is discussed in the works of Barbosa Rodrigues and Santesson," the latter dealing with the curare which I brought from Igarapé de São Jeronymo in 1929. I myself have seen it used in hunting monkeys. The effect on the wounded animal is to produce immediately incontinence of feces and urine, the creature falling in about three minutes. [114] 411

Calixto daueru'kɨ told me that, while poisoning some darts for a hunt one day, he wounded himself very superficially in the hand. Immediately the action of the curare produced spasms of the facial muscles, pains, and incontinence of urine and feces. He cured himself by drinking his own urine, which the Tukuna consider the only remedy. 752

I was told of another Indian who went alone into the jungle to hunt with his blowgun. When he fired at some arboreal animal, the dart erred in its flight, ricocheted off a tree, and struck him in the back. Later, he was found dead in the jungle. It is because of such experiences that the Tukuna prefer not to go alone while hunting with curare. 411 [752] [224]

For large game they do not use the blowgun, but the bow and arrow and lance. The bow (vɐra') is sometimes 2 m. long. Figure 6 shows it in cross section. The

" Hassel, Las tribus salvajes de la region Amazónica del Perú, Bol. Soc. Geog., 17:58.
" C. G. Santesson, Ein starkes Topf-Kurare von den Tucuna- (Ticuna-) Indianern des oberen Amazonas, Acta Medica Scandinavica, 75:1–9.

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ends are notched to receive the bowstring (vẹra'-maa'ⁱ), which was formerly made of bromelia but is nowadays of tucum fiber. Since it has never been used much for fishing and today is not much used in hunting, the bow is being abandoned. The arrow (kɔ:'ru) is made of canna brava. Its total length is 162 cm.; the length of its four-tined point, 9 cm. It is poisoned with curare and kept in a sheath of bamboo (taboca). Its feathering, in the form of a bridge, is tangential (*Stegfiederung*). Today it is completely obsolete.

There were formerly three types of spear, of which two are still in use today. The first was a throwing spear, va:ma'gu, of paxiubinha, 263 cm. long. The poisoned tip, 16 cm. long, looked like an arrow point and, like the arrow point, was protected by a bamboo sheath. In 1929 I saw these spears still in use, but by 1941 they no longer existed. With the second type, dẽ, the Tukuna still hunt wild pigs. It is a thrusting spear some 236 cm. long, a simple staff of *marajá* wood (*Bactris* sp.), the point being produced by removal of an oblique slice from one end. The third type is even shorter, a pole, dɔ'ča, which nowadays has an iron point. It is used in hunting jaguars (onças) brought to bay by hounds.

Dogs, T., airu' (a'i, spotted jaguar, l.g., *onça pintada*), are found in nearly all the houses, but most of them are worthless for the chase, so that a hunter prefers to leave them at home. According to the Tukuna, dogs are pre-Columbian, the first having been mysteriously borne by an Indian woman.

Traps.—Formerly the Tukuna knew a number of aboriginal types of traps, most of which fell into disuse after the Indians learned how to make booby traps with firearms. One of these early traps, called "vaⁱpara'ne," which was set up over a deer or tapir run, consisted of two strong but elastic logs, tied together vertically on a horizontal beam at a height sufficient to permit the animal to pass beneath. When the trap was set, the two logs were bent in such a way that the ends were spread apart to the sides of the trail at just the right height. The quarry, passing under the horizontal beam, would spring the trap, the two logs snapping against the animal's flanks. Since each log had three spikes on the inner surface, the game was severely wounded as well as tightly held.

For agouti (l.g., cutía) the Tukuna use even today a type of trap known as *mundé* (deadfall)—or, in Tukuna, yẹta'—under which the victim is directed by two brush fences.

For small animals accustomed to running about on the ground, the Tukuna make an enclosure in the jungle sometimes a hundred meters long, and with various openings, behind each of which they set a noose. This fence appears in one legend of the culture heroes (see p. 126) and also in the tale of the seller of a songbird, *sabiá* (p. 154).

Another type of trap for catching *macucáuas* (*Tinamus* sp.), rats, and agoutis consists of a baited lasso at the end of an elastic pole (trip noose) bent over to the ground in the middle of a circular enclosure with one opening (bu:'rẽẽ). With other traps they catch doves and pigeons by setting a burden basket so that one side is slightly raised, with the bait below. In 1929 I observed a rattrap in the form of a small box with a trip door; I suppose, with Tessmann, that this variant was introduced through contact with the Neobrazilians.

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For the deer that invade the plantations, pitfalls (a:'maĮ") are dug to the depth of a meter and a half, a sharpened paxiuba stake being set vertically at the bottom. In a pitfall that I saw, a dog had died, and a few days later an alligator also fell into it. 224

Gathering

The gathering of wild fruits and the capture of animals that cannot properly be included under hunting are still carried on by both sexes; by men when the opportunity presents itself and by women on trips made for the purpose. 222 [462]

There are many varieties of edible wild fruits, although most have no economic importance, being no more than mere tidbits, like the pods of the *arara tucupy*, the seeds of which are covered with a thin layer of thick, sweet liquid. The only fruits of real economic importance are those of the four palms, burity (*Mauritia vinifera*), *bacabeira* (*Oenocarpus bacaba*), *patauá* (*Oenocarpus patauá*), and açahy (*Euterpe* sp.). All four species are common in the jungles of the Tukuna. During the period of gathering one always sees large earthenware vessels containing burity fruits soaked in a solution to make the rinds come off more easily, and the Indians constantly help themselves. The fruits of these four palms are then macerated in tepid water and a fatty drink is prepared by a process common among the Neobrazilians as well, the separation of the pulp from the stones by treading. The liquid is passed through a very fine sieve (va'iri-činĮ-Į"ù, from va'ira, açahy). A sufficient quantity is then prepared so that the neighbors may be invited to drink also. The gathering of the fruits and the preparation of the beverage are feminine tasks. 222 [462] 262 [415] 272 [171] [462]

The Tukuna are acquainted with the Brazil nut, or niggertoe, *castanha do Pará* (*Bertholletia excelsa*), but they eat only the kernels without preparing from them either milk or oil. Nino, an Indian of Igarapé da Rita, had planted near his house about ten such saplings, which were then bearing fruit. 262 [245]

The Tukuna will not eat toads, though they do not reject various species of frogs; they also eat beetle larvae, which are found in burity palms, and the queens of *saúva* ants (l.g., *içá; Atta cephalotes*) when they are swarming. Of the various kinds of honey the most appreciated is that of the wild bee, jandaíra. Bees are not raised at home. [263]

Food

The most common food is fish, either boiled or freshly smoked and eaten with farinha (formerly with beijús). Seasoning is obtained by thrusting the fingertip into a small dish with crushed salt and pepper and then licking it. At present, the salt is bought from the Neobrazilians, but it is said that in the old days it was prepared from the ash from burned green marajá palm leaves. 262 [263] [499]

Of fish, the Indian takes only as much as he can swallow at one gulp, picking it, with a rapid pinch of the fingers, from the common receptacle. In consequence, the piece of fish shortly assumes such a tattered appearance that it looks like nothing more than a dog's dinner. 264

When there is roast game, no one cuts himself a large piece, but each in turn seizes the meat, tears off a chunk with the teeth, and tosses the remainder back

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CULTURE

SUBSISTENCE ACTIVITIES

241 **Farming.**—The main *Tucuna* crops are bitter manioc, sweet manioc (macaxera), cara (*Dioscorea*), and maize. The last is planted with some ceremony. There are also at least three species of edible tubers which are not used by civilized people.

226 227 **Fishing and hunting.**—Fish, of great importance to the *Tucuna*, are taken with four- to nine-pronged javelins, arrows, harpoon arrows, baskets, weirs, traps, and a drug made of timbó. The Indians fish almost daily from childhood. On the Solimões, they are expert fishers of pirarucú, an important article of commerce.

224 177 411 Hunting today is unimportant, since game has been depleted to fill the demand for hides. The *Tucuna* now use firearms, but formerly employed the bow and arrow, spear, and blowgun. They also use pitfalls and several types of snares and traps. The blowgun, once the principal weapon, is disappearing.

222 262 [245] **Gathering.**—The wild burity, bacaba, pataúá, and açahy palms are of great economic value. Some *Tucuna* plant Brazil nut trees near their houses. They eat certain frogs, Coleoptera larvae, and female red ants at hiving time. They like wild honey but keep no bees.

231 **Domesticated animals.**—The *Tucuna* raise a few chickens, but do not want hogs or other domestic animals because they dirty the premises. They keep young wild mammals and birds uncaged.

412 252 [177] [434] **Food preparation.**—Instead of a mortar, the *Tucuna* use a trough with a half-moon-shaped rocker of thick and heavy wood. The making of manioc flour, introduced by the Neo-Brazilians, became one of the principal sources of income among the *Tucuna*.

HOUSES

342 The old houses had a small rectangular central portion with a short ridge pole mounted on props. Each end was semicircular, so that the ground plan was oval or nearly round. The walls were of a man's height, and were made of boards of paxiuba or of straw. The house could be sealed tight against mosquitoes. Families occupied the lateral corridors, the central space being reserved for ceremonies. All houses were spacious and well built.

177 342 352 513 The introduction of mosquito nets made house walls unnecessary. People slept on bunks along the walls, covered with mosquito nets, instead of in hammocks. Many houses were built without the semicircular extremities but with a longer central part, being like an open rectangular ranch house with a ridge pole. When the tribe occupied the flood plains of the shores and islands, they built houses on piles.